FACULTY:	Department of Mechanical Engineering
FIELD OF STUDY:	Mechanics and Machine Building
ERASMUS COORDINATOR OF THE FACULTY:	Dr hab. inż. Agnieszka Kułakowska, Prof. PK
E-MAIL ADDRESS OF THE COORDINATOR:	agnieszka.kulakowska@tu.koszalin.pl
COURSE TITLE:	Material science I
LECTURER'S NAME:	dr hab. inż. Tomasz.rydzkowski; dr inż. Mieczyslaw Pancielejko
E-MAIL ADDRESS OF THE LECTURER:	Tomasz.rydzkowski@tu.koszalin.pl; Mieczyslaw.pancielejko@tu.koszalin.pl
COURSE CODE (USOS):	4
ECTS POINTS FOR THE COURSE:	3 ECTS
ACADEMIC YEAR:	2024/2025
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	• English full time scheme for classes with 5 and more international Erasmus+ students enrolled/accepted; • English 50% individually with the teacher + Polish 50% with Polish students or individual project work-scheme for classes with less than 5 international Erasmus+ students enrolled/ accepted;
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	Bravais lattices. Crystal lattice types. The crystallographic planes and directions – Miller indexes. Crystallographic defects. Point, line, planar and bulk defects. A grain boundary. Polycrystalline materials. Cold work and recrystallization; mechanism of the plastic strain. Strain hardening of metals. Recrystallization - changes of the metal property after the recrystallization. Arrangements of the phase equilibrium. Definition of the phase. Type of phases. Two-component diagrams types. Metastable Iron-Carbon (Fe-Fe_3C) phase diagram: phases definitions in the Fe-Fe_3C phase diagram, transformations (eutectic and eutectoid and peritectic. Polymer, composite and ceramic materials. Kinds of the chemical bonds. The structure difference between amorphous and crystal solids. The atomic structure difference between metals and ceramic materials. Definition of composite material. The role of matrix and reinforcement in composite materials. Contemporary construction materials.
ADDITIONAL INFORMATION:	

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